Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Withdrawn) A method of making a structure for growing nanotubes, comprising:

growing a thermal oxide on a surface of a silicon wafer,

depositing a layer of Hf on the thermal oxide;

annealing the layer of Hf in N_2 to obtain a layer HfN;

patterning the layer of HfN;

forming passivation layer on the layer of HfN;

cutting vias through the passivation layer to the layer of HfN;

depositing a catalyst material in the vias;

patterning the catalyst metal; and

annealing the catalyst metal to form catalyst islands.

2. (Withdrawn) The method of claim 1, wherein:

the layer of Hf is annealed in N_2 for more than one hour at a temperature greater than 300 degrees C; and

the catalyst material is annealed in a forming gas.

3. (Withdrawn) The method of claim 2, wherein the catalyst material is annealed at a temperature greater than 700 degrees C for a period of time greater than fifteen minutes.

4. (Withdrawn) The method of claim 3, wherein the forming gas comprises H_2 and N_2.

5. (Withdrawn) The method of claim 4, wherein the catalyst material is selected from a group consisting of iron, molybdenum, cobalt, nickel, ruthenium, zinc and oxides thereof.

6. (Withdrawn) The method of claim 5, further comprising:

placing an electric field in a vicinity of the catalyst islands;

maintaining the temperature greater than 500 degrees; and

maintaining the forming gas in the vicinity of the catalyst islands to grow a nanotube.

7. (Withdrawn) The method of claim 5, further comprising:

placing the catalyst islands in an electric field;

maintaining the temperature greater than 500 degrees; and

placing the catalyst islands in an environment comprising carbon-containing gas.

8. (Withdrawn) The method of claim 7, wherein the carbon-containing gas is methane.

9. (Withdrawn) The method of claim 8, further comprising maintaining the environment of claim 7, until a desired nanotube is grown.

10. (currently amended) A structure comprising:

a substrate;

an oxide layer on the substrate;

an HfN layer on the oxide layer;

a passivation layer on the HfN layer, having at least one via through the passivation layer to the HfN; and

a catalyst island formed on the at least one via connected to the HfN layer, wherein the catalyst island is formed by exposing catalytic material to a temperature sufficient to form a ball having a diameter and a thickness, wherein the diameter is similar to [[a]] the thickness.

11. (previously presented) The structure of claim 10, wherein the catalyst island is configured to withstand an environment having a carbon-containing gas, a temperature greater than 500 degrees C and an electric field.

12. (previously presented) The structure of claim 11, wherein the catalyst island is adapted to withstand the environment until a desired nanotube is grown.

13. (currently amended) A structure comprising:

a substrate;

an insulating layer on the substrate;

an HfN layer on the insulating layer;

a protective layer on the HfN layer; and

at least one catalyst island in contact with the HfN layer, wherein the catalyst island is formed by exposing catalytic material to a temperature sufficient to form a ball having a diameter and a thickness, wherein the diameter is similar to [[a]] the thickness.

14. (original) The structure of claim 13, wherein the catalyst comprises at least one metal selected from a group consisting of iron, nickel, cobalt, zinc, molybdenum, ruthenium and oxides thereof.

15. (previously presented) The structure of claim 14, wherein the catalyst island is adapted to withstand being placed in an environment comprising:

a carbon-containing gas;

an electric field; and

a temperature greater than 500 degrees C.

16. (original) The structure of claim 15, maintaining the environment until a nanotube is grown.

17. (Withdrawn) Means for making a structure for growing a nanotube, comprising:

means for providing a substrate;

means for at least partially insulating a surface of the substrate;

means for forming a layer of HfN on the surface of the substrate;

means for passivating a surface of the layer of HfN; and

means for forming at least one catalyst island having contact with the layer of HfN.

18. (Withdrawn) The means of claim 17, wherein that at least one catalyst island comprises a material selected from a group consisting of iron, nickel, zinc, molybdenum, cobalt, ruthenium and oxides thereof.

19. (Withdrawn) The means of claim 18, wherein the substrate comprises a material selected from a group consisting of silicon, silica, alumina, quartz, sapphire, and silicon nitride.

20. (Withdrawn) The means of claim 19, further comprising:

means for subjecting the at least one catalyst island to a temperature greater than 500 degrees C;

means for subjecting the at least one catalyst island to a carbon-containing gas; and

means for subjecting the at least one catalyst island to an electric field.

21. (Withdrawn) The means of claim 20, further comprising means for sustaining the temperature, the carbon-containing gas and the electric field until a nanotube is grown.

22. (Withdrawn) A method for making a structure comprising:

forming HfN material on a substrate; and

forming at least one catalyst island on the HfN material.

23. (Withdrawn) The method of claim 22, further comprising:

placing the structure in a carbon-containing gas; and

placing the structure in an environment having a temperature greater than 500 degrees C.

24. (Withdrawn) The method of claim 23, placing the structure in an electrical field.

25. (Withdrawn) The method of claim 24, further comprising growing a nanotube.

26. (currently amended) An apparatus comprising:

an insulating substrate;

a conductive material deposited on the substrate;

a passivation material deposited on the conductive material, wherein one or more vias are formed through the passivation material to the conductive material; and

an island of a catalytic material formed in and on the vias to the conductive material, wherein the island of catalytic material is formed by exposing the catalytic material to a temperature sufficient to form a ball having a diameter and a thickness, wherein the diameter is similar to [[a]] the thickness.

27. (previously presented) The apparatus of claim 26, wherein the conductive material is selected from a group of transition metal nitrides, ZrN, TaN, TiN, HfN, conductive nitrides, Hf, conductive metals and oxides thereof.

28. (previously presented) The apparatus of claim 27, wherein the conductive material is stoichiometric.

29. (previously presented) The apparatus of claim 27, wherein the conductive material is non-stoichiometric.

30. (previously presented) The apparatus of claim 27, wherein the catalytic material is selected from a group of Fe, nickel, molybdenum, cobalt, ruthenium, zinc, and oxides, alloys and mixtures thereof.

31. (previously presented) The apparatus of claim 27, wherein the conductive material is ITO.

32. (previously presented) The apparatus of claim 27, wherein the conductive material is a conductive oxide.

33. (original) The apparatus of claim 30, wherein the substrate comprises a material selected from a group of silicon, silica, quartz, silicon nitride, sapphire, and alumina.

34. (original) The apparatus of claim 33, further comprising a nanotube extending from the island.